



# HU-16 ALBATROSS

## USER MANUAL

Virtavia HU-16 Albatross – DTG Steam Edition  
Manual Version 1.0

# INTRODUCTION

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The Grumman HU-16 Albatross is a twin-engine amphibious flying boat. First flown in 1949, the HU-16 underwent a number of modifications and improvements over its storied career that included service with dozens of nations in a variety of roles. The HU-16 features a 16-foot wing extension over the initial production variant and was a definitive model, seeing service primarily with the United States Air Force as a coastal search-and-rescue aircraft. In total, Grumman built 466 Albatrosses, some of which still fly today in private collections..

The Virtavia HU-16 Albatross is a fully 'native' FSX:SE release, which includes visual effects such as self shadowing, bloom and bump mapping.



# SUPPORT

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Should you experience difficulties or require extra information about the Virtavia HU-16 Albatross, please e-mail our technical support on [tech.support@virtavia.com](mailto:tech.support@virtavia.com)

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# PACKAGE CONTENTS

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The Virtavia HU-16 Albatross package contains seven model variants to represent the commonest variants of the type. These are depicted in twelve liveries :

Livery 1 : HU-16B



Livery 2 : HU-16E



Livery 3 : HU-16B



Livery 4 : HU-16C



Livery 5 : HU-16D



Livery 6 : HU-16B



Livery 7 : HU-16D



Livery 8 : G-111



Livery 9 : HU-16D



Livery 10 : G-111



Livery 11 : G-111



Livery 12 : SHU-16B



# EXTERIOR MODEL

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The exterior model has all the usual animations such as ailerons, elevators, flaps and rudder. There are some additional animations on the model :

## Crew Access

*shift-e* : Cockpit roof hatches

*2nd Exit (shift-e then 2)*: Fuselage hatches

## Cowl Flaps

Use Ctrl-Shift-V to open, Ctrl-Shift-C to close.

## Prop Blades

Use Ctrl-F1 for fully fine pitch, Ctrl-F4 for fully coarse pitch and Ctrl-F2 and Ctrl-F3 to increment.

## Crew figures

The crew figures can be toggled using Ctrl-W

# EXTERIOR LIGHTING

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Pressing the L key will turn on all lights. You may however wish to turn them on using the appropriate switches in the cockpit, as the L key also turns the on navigation, landing lights and flood lighting in the cockpit, which should ideally be switched separately.

Shift-L will toggle the nav lights and the cockpit lights.

Crtl-L will toggle the landing light.

Please refer to the cockpit section from page 12 of this manual for information regarding light switch location.



# ALTERNATIVE VIEWPOINTS IN FSX:SE

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There are several different ways of looking at the aircraft and the cockpit; select these alternative views by right-clicking in an empty area and picking the 'Aircraft' menu for external views and the 'Cockpit' menu for views inside the cabin. It is possible to zoom and pan as normal in these alternative views. Cycle through the available ones by pressing the A key.

## External View Options

It is possible to pan and zoom as normal in all external views.

Right side view



Left side view



Tail view



Nose View



## Interior Views

It is possible to pan and zoom as normal in all interior views.

Virtual Cockpit View



Copilot's Seat View



Jump Seat View



## Virtual Cockpit View



### **Moving Around the Cabin**

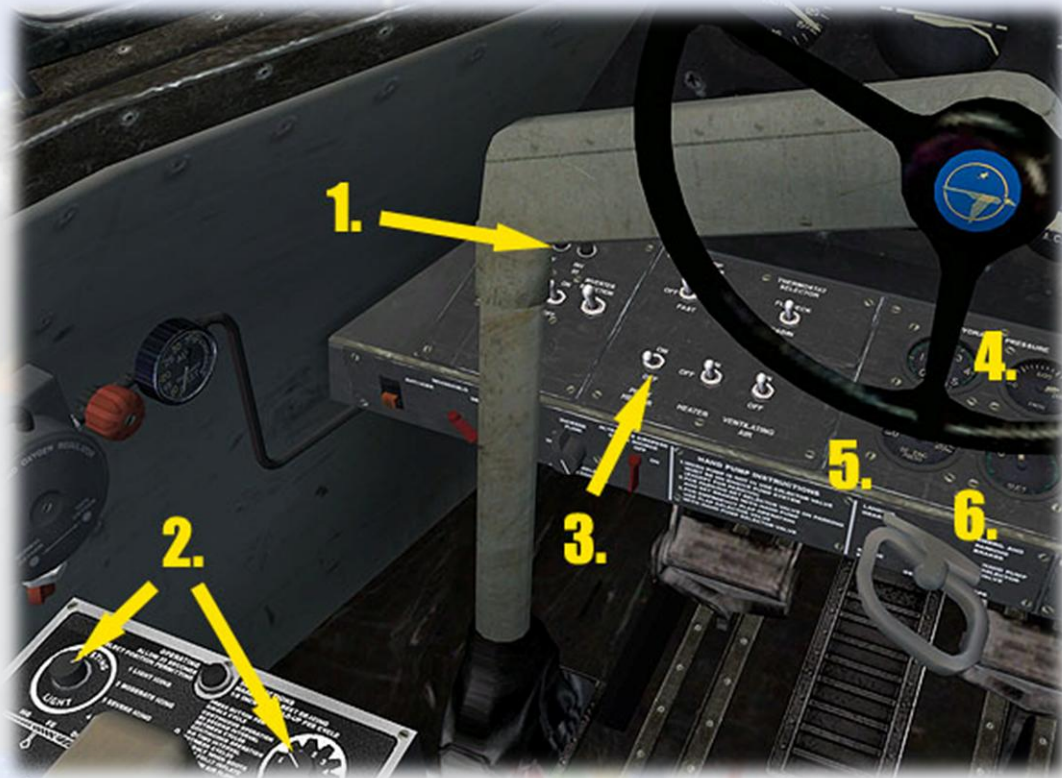
Shift-Enter and Shift-Backspace : moves up and down

Ctrl-Shift-Enter and Ctrl-Shift-Backspace : moves side-to-side

Ctrl-Enter and Ctrl-Backspace : moves back and forwards

# VIRTUAL COCKPIT FUNCTIONS

## PILOT'S PANEL · LEFT SIDE



- 1) **Generator Control Buttons.** (partially hidden)
- 2) **De-icing Switches.**
- 3) **Pitot Heater Switch.**
- 4) **Hydraulic Pressure Gauges.**
- 5) **De-icing Pressure Gauge.**
- 6) **Suction Gauge.**

## PILOT'S PANEL • CENTER



- 1) **Airspeed Indicator.**
- 2) **Artificial Horizon.**
- 3) **Vertical Speed Indicator.**
- 4) **Altimeter.**
- 5) **Gyro Compass.**
- 6) **Turn & Slip Indicator.**
- 7) **Cylinder Head Temperature Indicators.**
- 8) **Manifold Pressure Gauge.**
- 9) **RPM Gauge.**
- 10) **Radio Magnetic Indicator (RMI).**
- 11) **Course Deviation Indicator (CDI).**
- 12) **Standby Radio Magnetic Indicator (RMI).**

13) **Engine 1 Condition Indicators.** Oil pressure gauge and standby gauges for Cylinder Head Temp. and Fuel Quantity (main tank).

14) **Engine 2 Condition Indicators.** Oil pressure gauge and standby gauges for Cylinder Head Temp. and Fuel Quantity (main tank).

15) **Trim Indicator.** Aileron (top) and elevator (btm) trim.

16) **Radio Altitude Indicator.**

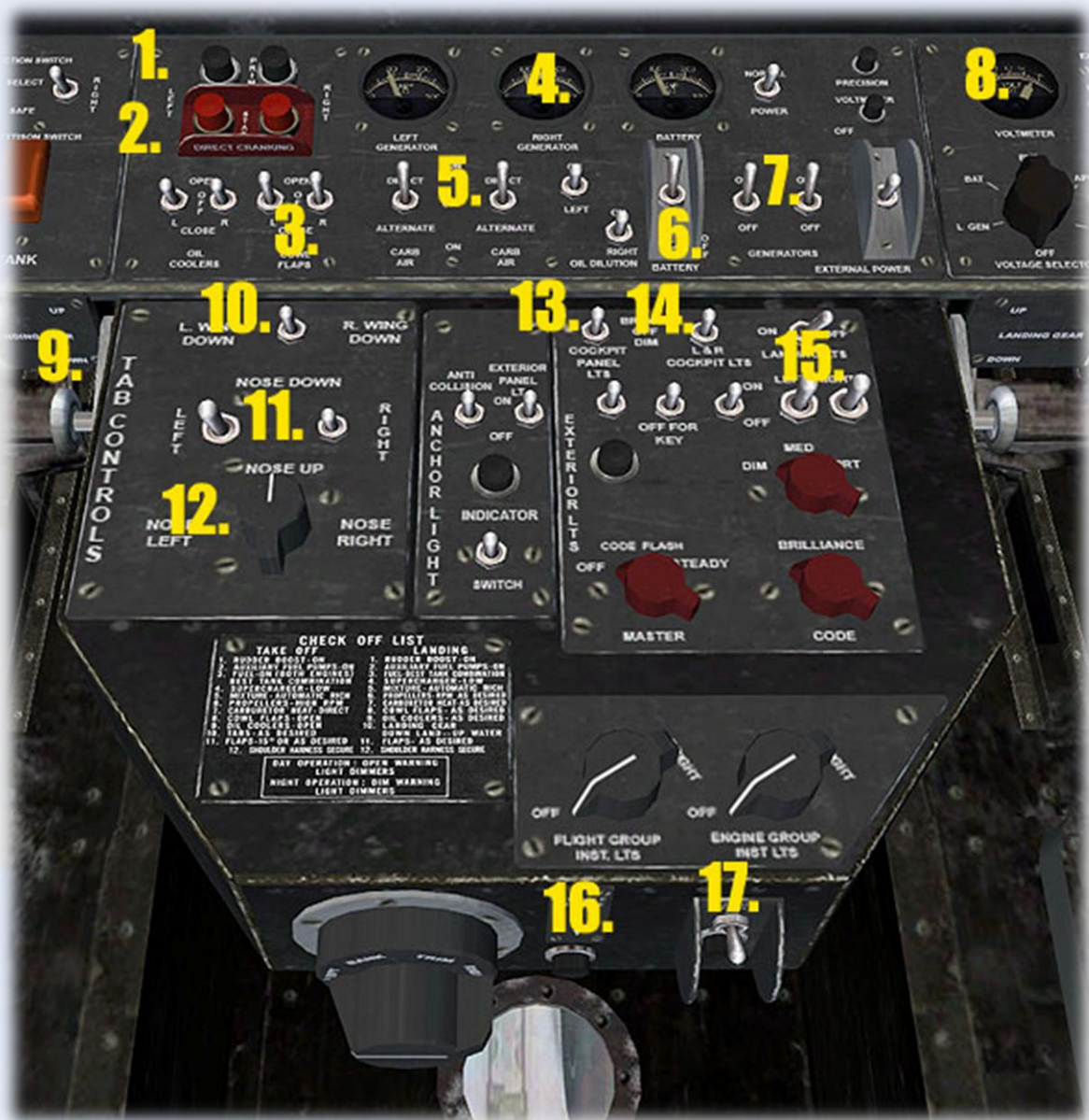
17) **DME Indicator.** Distance to NAV1 station in nautical miles.

18) **Cylinder Head Temperature Indicators.**

19) **Fuel Quantity Indicators.** Shows left and right Main Tanks.

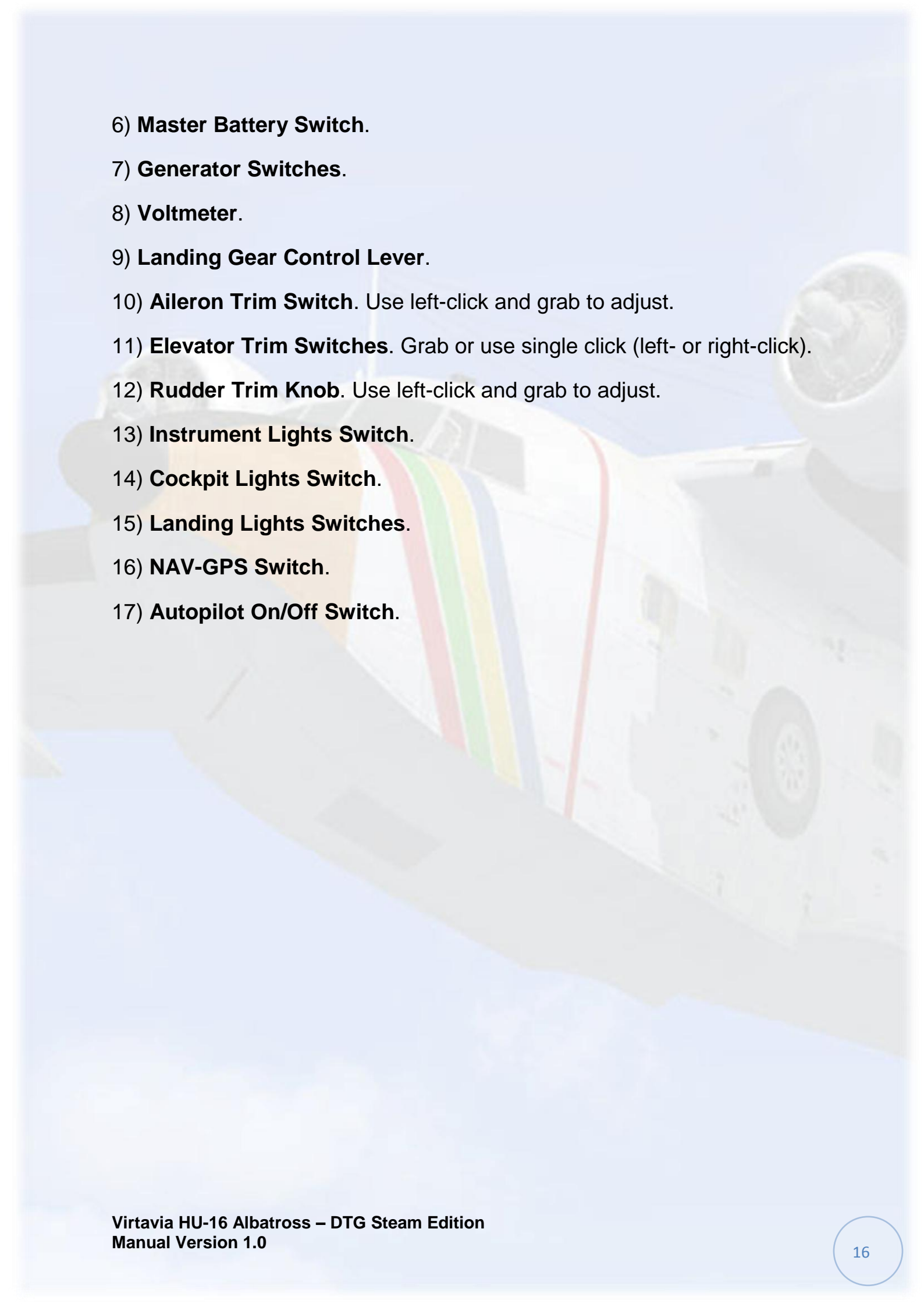
20) **Standby Trim Indicator.** Aileron (top) and elevator (btm) trim.

# CENTER CONSOLE



- 1) **Engine Primer Buttons.** Press and release to prime engine.
- 2) **Engine Starter Buttons.** Press and release to start engine.
- 3) **Cowl Flaps Switches.** Press & release to open. Use right-click press & release to close.
- 4) **Ammeters.**
- 5) **Generator Switches.**



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- 6) **Master Battery Switch.**
  - 7) **Generator Switches.**
  - 8) **Voltmeter.**
  - 9) **Landing Gear Control Lever.**
  - 10) **Aileron Trim Switch.** Use left-click and grab to adjust.
  - 11) **Elevator Trim Switches.** Grab or use single click (left- or right-click).
  - 12) **Rudder Trim Knob.** Use left-click and grab to adjust.
  - 13) **Instrument Lights Switch.**
  - 14) **Cockpit Lights Switch.**
  - 15) **Landing Lights Switches.**
  - 16) **NAV-GPS Switch.**
  - 17) **Autopilot On/Off Switch.**

# OVERHEAD CONSOLE • AFT



- 1) **Propeller 1 Feathering Switch.** Left-click to set minimum pitch, right-click to reset to maximum pitch.
- 2) **Propeller 2 Feathering Switch.** Left-click to set minimum pitch, right-click to reset to maximum pitch.
- 3) **Fuel Tank Selector Knob, Left Side.**

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- 4) **Magento Selector Switches.** Left-click to advance, right-click to return.
  - 5) **Master Ignition Toggle Switch.**
  - 6) **Fuel Tank Selector Knob, Right Side.**
  - 7) **No. 1 Fuel Transfer Pump Switch.**
  - 8) **No. 2 Fuel Transfer Pump Switch.**
  - 9) **Throttle Control Levers.**
  - 10) **Mixture Control Levers.**
  - 11) **Wing Flaps Switch.** Click and drag to operate.

# CoPILOT'S PANEL



- 1) **Clock.**
- 2) **Undercarriage and Flaps Indicator.**
- 3) **Non-functional.**
- 4) **Airspeed Indicator.**
- 5) **Artificial Horizon.**
- 6) **Vertical Speed Indicator.**
- 7) **Altimeter.**
- 8) **Gyro Compass.**
- 9) **Turn & Slip Indicator.**

# Two-D Panel Pop-Ups in VC

The following keystrokes will toggle the 2D pop-up panels associated with the accompanying 2D panel suite :

**Shift-2** : Radio Stack

**Shift-3** : Standard FSX:SE GPS unit

**Shift-4** : Autopilot panel



## REFERENCE INFORMATION

### **Virtavia HU-16 Albatross Procedures**

#### **Preflight**

1. Exterior Check
  - a. Nose landing gear
  - b. Floats, drop tanks, wing control surfaces
  - c. Elevators, rudder
  - d. Main landing gear
  - e. Engine cowls, propellers
  - f. Wing and beacon lights
  - g. Rear exit doors
  
2. Interior Check (Pilot Controls)
  - a. Top hatches and rear exits - CLOSED
  - b. Seat adjustment to design eye position - SET
  - c. Parking brake - SET (Ctrl-.)
  - d. De-ice switch – OFF
  - e. Battery – OFF
  - f. Master Ignition – OFF
  - g. Magneto Switches – OFF

#### **Starting Engines**

1. Throttles – IDLE
2. Battery switch – ON
3. Instrument panel lights as required
4. Open cowl flaps as required
5. Master Ignition switch – ON
6. Magneto switches – ON
7. Start engine 1 – press left Magneto Switch
8. Allow Engine 1 to stabilise.
9. Start engine 2 – press right Magneto Switch
10. Allow Engine 2 to stabilise.
11. Generator switches to ON when both engines running
12. Anti-ice switch – ON
13. Pitot heat – ON (if conditions warrant)

## Taxi (Runway)

1. Nav and Beacon lights - ON
2. Release parking brake - OFF
3. Apply light throttle to begin taxi
4. Test brakes.
5. Continue taxi if brake test positive

## Taxi (Water)

1. Nav and Beacon lights - ON
2. Apply light throttle to begin taxi
3. Turn aircraft into wind

## Take Off

1. Set flaps to one notch
2. Apply approx. 3 deg. pitch trim
3. Increase both throttles to 100%

## Climbout

1. Retract Landing Gear
2. Retract Flaps
3. Trim pitch back as required
4. Close Cowl Flaps as required

## After Landing

1. Cowl Flaps open as required
2. Exterior lights - OFF
3. Anti-ice switch – OFF
4. Pitot heat switch – OFF

## Engine Shutdown

1. Parking brake - SET
2. Magnetos - OFF
3. Master Ignition - OFF
4. Generators – OFF
5. Battery switch – OFF



## Virtavia HU-16 Albatross Reference Notes

The Grumman HU-16 Albatross is a twin-engine amphibious flying boat. First flown in 1949, the HU-16 underwent a number of modifications and improvements over its storied career that included service with dozens of nations in a variety of roles. The HU-16 features a 16-foot wing extension over the initial production variant and was a definitive model, seeing service primarily with the United States Air Force as a coastal search-and-rescue aircraft. In total, Grumman built 466 Albatrosses, some of which still fly today in private collections.

### Specifications:

|                                     |  |
|-------------------------------------|--|
| Twin-engine amphibious flying boat. |  |
| Empty weight:                       | 20,000 lbs   |
| Typical TO weight:                  | 31,000 lbs   |
| Max TO weight:                      | 36,000 lbs   |
| Engine type:                        | 2x Wright R-1820-76 Cyclone 9 radial engine, 1425HP each |
| Fuel capacity:                      | 1075 US Gal internal                                     |
| Drop tanks:                         | 300 gal/each   |
| Initial climb rate:                 | 1,200 ft/min   |
| Service ceiling:                    | 21,500 ft  |

### Aircraft Limitations:

|                       |                    |
|-----------------------|--------------------|
| Stall speed, clean:   | 70 KIAS            |
| Max gear extension:   | 150 KIAS           |
| Max gear retraction:  | 150 KIAS           |
| Max ind. airspeed:    | 210 KIAS           |
| Max speed, Sea Level: | 205 KIAS (236 mph) |
| Maximum G:            | +3 / -2            |

### Notes on configuration and load-out:

All applicable load stations are included in the configuration file. In the event the user wishes to use a model with particular load-out, they will need to add weight to the particular load station. The recommended and researched weights for each load station are as follows:

|                |                 |                       |
|----------------|-----------------|-----------------------|
| Station_load.0 | Pilot           | 200.00 lbs (Flexible) |
| Station_load.1 | Copilot         | 200.00 lbs (Flexible) |
| Station_load.2 | Left drop tank  | 200.00 lbs            |
| Station_load.3 | Right drop tank | 200.00 lbs            |
| Station_load.4 | Internal Cargo  | 5000.00 (Flexible)    |

In the fuel load-out editor the drop tanks are listed as following:

|             |                               |
|-------------|-------------------------------|
| External 1: | Left drop tank (300 gallons)  |
| External 2: | Right drop tank (300 gallons) |

If you are using a model that does not have one of these fuel tanks, set the fuel level for the given tank to 0. You must do this as the fuel tank will always default to the maximum capacity of the tank.

### Autopilot:

Though this aircraft is equipped with a rudimentary auto flight system, it is designed to be flown by hand through the majority of the flight envelopment. The auto flight system however, is fully functional and more than capable of controlling pitch and roll. It is recommended that when attempting to use the auto flight to hold an altitude to level off as best as possible to avoid any pitch oscillations. When using the autopilot in vertical speed mode to capture an altitude, use 500ft below as the anticipation altitude to begin leveling off.

### Trim Characteristics:

The aircraft will require only small trim adjustments throughout its flight envelope, with the exception of landing, where the gear and flaps cause a nose-down tendency. The aircraft is capable of trimming +/- 10° in either direction; though it is highly unlikely that this much trim would be required at any phase of flight.

### **General Notes on Handling:**

The Grumman HU-16B is a very forgiving aircraft to fly. It has no serious handling issues, though if flown too slowly, the aircraft may enter a spin if stalled during a bank. Additionally, if the aircraft does stall the best way to recover it should be to get the nose pointed down as soon as possible and extend the flaps.

For landing on the water, use the same approach speed as you would if landing on a hard runway surface. Because of the shape of the hull, the Albatross can handle choppy water conditions without putting too much strain on the aircraft's structure.

The aircraft steers well in the water without the use of a water rudder. Using rudder input and differential engine power, the aircraft can maneuver through the water with ease.